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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,322	07/24/2001	Tsuneyoshi Tajima	209326US2PCT	1534

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EXAMINER
ADDISON, KAREN B

ART UNIT	PAPER NUMBER
2834	9

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/869,322	TAJIMA ET AL.	
	Examiner	Art Unit	
	Karen B Addison	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 5/16/02 .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,4-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshifumi (11285184) in view of Tanimoto (5,5510662).

Yoshifumi discloses in fig.1 a permanent-magnet motor comprising 1 a stator having 1 stator winding of plural phases; and a rotor 10 facing to inside of the stator across a gap part and having a rotor core and a permanent magnet (11) provided to the rotor core and wherein the permanent magnet is made so as to have of a convex part to an inner diameter side and a convex part to an outer diameter side in a cross section taken vertically to an axis. Yoshifumi does not show the rotor core assembly made of multi-layer piece and the magnetic orientation of the permanent magnet.

Taminoto teaches in fig 5: a permanent magnet motor comprising a rotor (24) comprising a rotational shaft (25), a rotor core assembly 26(made by multi-layering multiple pieces of core lamination having plural containing holes for insertion the permanents. Werein, the radius of arc outer diameter is side of the permanent magnet inserted in the hole is set as R<r), a straight line part (a) provided to each arc of an inner diameter side containg holes wherein the thickness of the rotor core is made within the

of thickness of the rotor core lamination, and the orientation of the permanent is located outside the rotor for the purpose of reducing cogging toque. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the permanent magnet motor of Yoshifumi with the permanent magnet of Tanimoto for the purpose of reducing noise.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshifumi in view of Tanimoto as applied to claim 1,4-9 above, and further in view of Denk (EP 0223612).

As seen above in paragraph 4, Yoshifumi substantially discloses the claim invention and Tanimioto discloses a rotor having a multi-layer lamination containing holes and the orientation of the permanent is located outside rotor. Neither Yoshifumi nor Tanimoto discloses a rotor formed by including the permanent in an outer peripheral part or the rotor core and a non- magnetic protect pipe attached around the permanent magnet. Denk disclose in fig. (2 & 3) a permanent motor formed by including the permanent (50) in the outer peripheral part of the rotor core (22) and a nonmagnetic protect pipe (70) is attached around the permanent for the purpose of producing a sinusoidal air gap which eliminates harmonic related losses in the rotor. Therefore, it would have been obvious at the time the invention was made to modify the permanent rotor of Yoshifumi and Tamimoto with the rotor core and nonmagnetic pipe of Denk for the purpose of eliminating losses due to harmonics. The method of manufacturing is inherent base on the structural limitations of Yoahifumi and Denk.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the dimensions of the gap to reduce cogging torque, since, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller,105 USPQ 233.

It is also a matter of design choice to select and air gap length of a motor. See "Design of Brushless Permanent-Magnet motors" by J.R. Hindershot Jr. and TJE Miller.1994 Chap.3 pages 3-1 and 3-23.

Response to Arguments

3. Applicant's arguments with respect to claims 1,3-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 703-306-5855. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

KBA
July 24, 2002